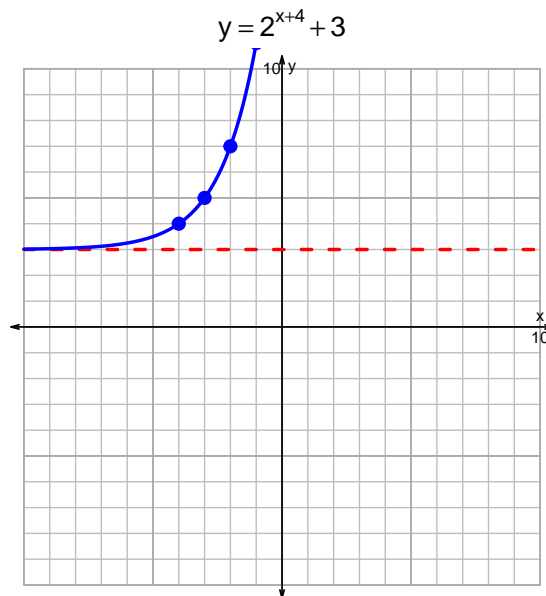
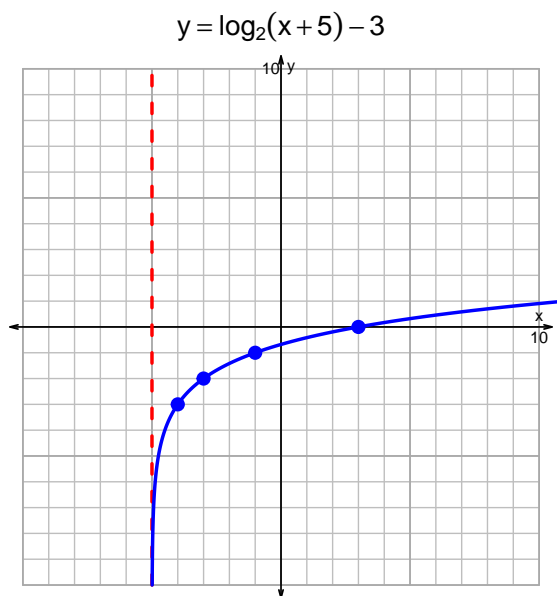


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v278)

1. Graph $y = \log_2(x + 5) - 3$ and $y = 2^{x+4} + 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$11 = \left(\frac{5}{4}\right) \cdot 10^{3t/7}$$

Divide both sides by $\frac{5}{4}$.

$$\frac{11 \cdot 4}{5} = 10^{3t/7}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{11 \cdot 4}{5} \right) = \frac{3t}{7}$$

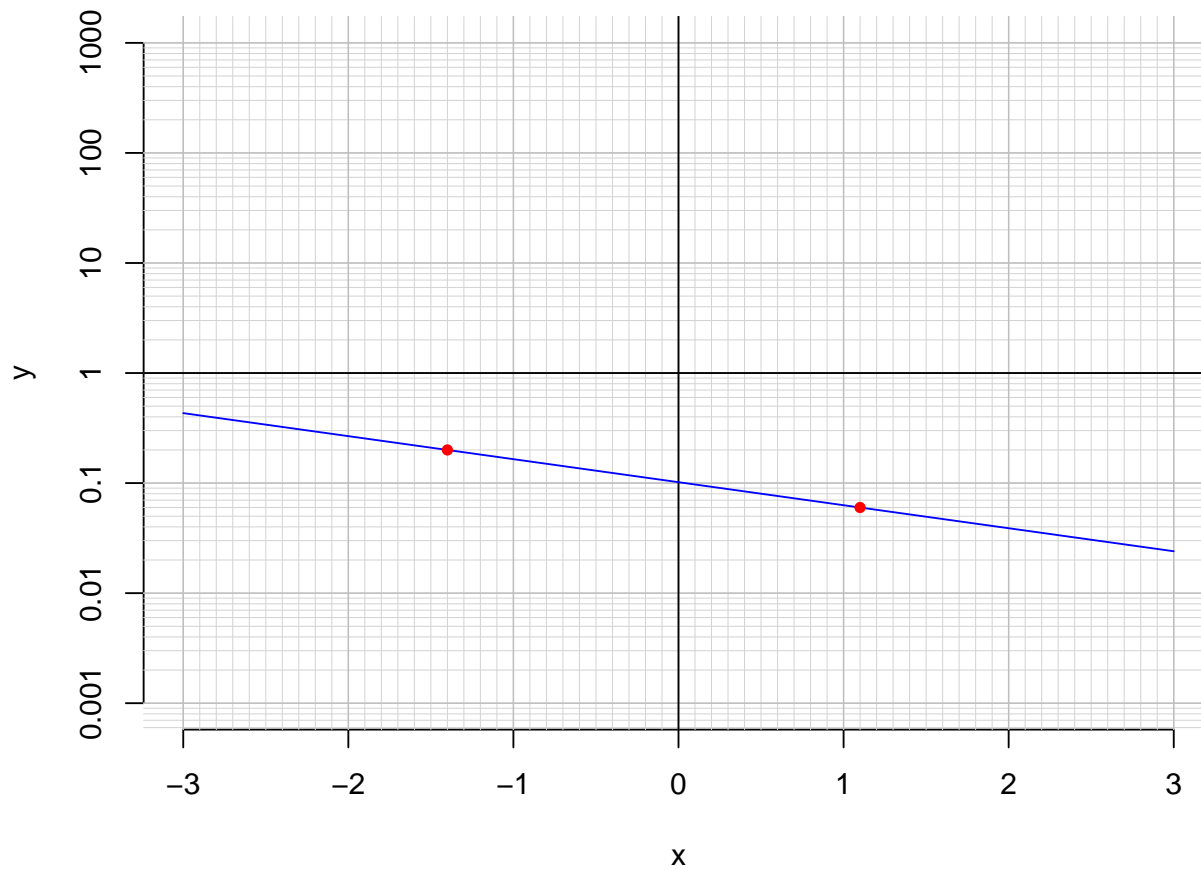
Divide both sides by $\frac{3}{7}$.

$$\frac{7}{3} \cdot \log_{10} \left(\frac{11 \cdot 4}{5} \right) = t$$

Switch sides.

$$t = \frac{7}{3} \cdot \log_{10} \left(\frac{11 \cdot 4}{5} \right)$$

3. An exponential function $f(x) = 0.102 \cdot e^{-0.482x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(1.1)$.

$$f(1.1) = 0.06$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{0.482} \cdot \ln\left(\frac{x}{0.102}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.2)$.

$$f^{-1}(0.2) = -1.4$$